

					Any Docket No.		Serial No.	
					M-9023-1 US		09/495,668	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT					Applicant(s)			
(Use several sheets if necessary)					Selffonov et al.			
					Filing Date		Group	
					February 1, 2000		1643	
U.S. Patent Documents								
*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate	
<i>JA</i>	1.	5,512,463	*04-30-1996	Stemmer	435	—	6/1/94	
	2.	5,514,588	05-07-1996	Varadaraj et al.	435	—	12/13/94	
	3.	5,605,793	02-25-1997	Stemmer	435	—	2/17/94	
	4.	5,763,239	06-09-1998	Short et al.	435	—	6/18/96	
	5.	5,789,228	08-04-1998	Lam et al.	435	—	5/22/96	
	6.	5,811,238	*09-22-1998	Stemmer et al.	435	—	11/30/95	
	7.	5,814,473	09-29-1998	Warren et al.	435	—	2/9/96	
	8.	5,824,469	10-20-1998	Horwitz et al.	435	—	9/30/94	
	9.	5,830,696	11-03-1998	Short	435	—	12/5/96	
	10.	5,830,721	*11-03-1998	Stemmer et al.	435	—	3/4/96	
	11.	5,834,252	11-10-1998	Stemmer et al.	435	—	4/18/95	
	12.	5,837,458	*11-17-1998	Minshull et al.	435	—	5/20/96	
	13.	5,866,363	02-02-1999	Piecznik	435	—	2/28/91	
	14.	5,876,997	03-02-1999	Kretz	435	—	8/13/97	
	15.	5,925,749	*07-20-1999	Mathur et al.	536	—	4/24/98	
	16.	5,928,905	07-27-1999	Stemmer et al.	435	—	7/3/96	
	17.	5,939,250	*08-17-1999	Short	435	—	5/22/96	
	18.	5,939,300	08-17-1999	Robertson et al.	435	—	7/3/96	
	19.	5,942,430	08-24-1999	Robertson et al.	435	—	2/16/96	
	20.	5,948,666	09-07-1999	Callen et al.	435	—	8/6/97	
	21.	5,958,672	09-28-1999	Short	435	—	6/3/96	
	22.	5,958,751	09-28-1999	Murphy et al.	435	—	3/8/96	
	23.	5,962,258	10-05-1999	Mathur et al.	435	—	8/23/95	
	24.	5,962,283	10-05-1999	Warren et al.	435	—	5/8/96	
	25.	5,965,408	10-12-1999	Short	435	—	7/9/96	
	26.	5,985,646	11-16-1999	Murphy et al.	435	—	4/24/98	
	27.	6,001,574	*12-14-1999	Short et al.	435	—	3/4/98	
	28.	6,004,788	*12-21-1999	Short	435	—	7/18/95	
✓	29.	6,030,779	*02-29-2000	Short	435	—	10/6/97	

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NO. 779

09/495668
P. 7/16F4

		30.	6,054,267	*04-25-2000	Short	435		8/2/96
Foreign Patent Documents								
							Translation	
		Document	Date	Country	Class	Subclass	Yes	No
✓	31.	97/07205	02-27-1997	WO				
	32.	97/20078	06-05-1997	WO				
	33.	97/25410	07-17-1997	WO				
	34.	97/35957	10-02-1997	WO				
	35.	97/35966	10-02-1997	WO				
	36.	97/44361	11-27-1997	WO				
	37.	97/48416	12-24-1997	WO				
	38.	97/48717	12-24-1997	WO				
	39.	97/48794	12-24-1997	WO				
	40.	98/00526	01-08-1998	WO				
	41.	98/01581	01-15-1998	WO				
	42.	98/13485	04-02-1998	WO				
	43.	98/13487	04-02-1998	WO				
	44.	98/24799	06-11-1998	WO				
	45.	98/27230	06-25-1998	WO				
	46.	98/28416	07-02-1998	WO				
	47.	98/31387	07-23-1998	WO				
	48.	98/36080	08-20-1998	WO				
	49.	98/41622	09-24-1998	WO				
	50.	98/41623	09-24-1998	WO				
	51.	98/41653	09-24-1998	WO				
	52.	98/42832	10-01-1998	WO				
	53.	98/48034	10-29-1998	WO				
	54.	98/58085	12-23-1998	WO				
	55.	99/07837	02-19-1999	WO				
	56.	99/08539	02-25-1999	WO				
	57.	99/10472	03-04-1999	WO				
	58.	99/10539	03-04-1999	WO				
	59.	99/19518	04-22-1999	WO				
	60.	0911396A2	04-28-1999	EP				
	61.	99/21979	05-06-1999	WO				
	62.	0911396A3	05-06-1999	EP				
✓	63.	99/23107	05-14-1999	WO				

Serial No.: 09/495,668

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09/445668

64.	99/23236	05-14-1999	WO				
65.	0934999A1	08-11-1999	EP				
66.	99/41368	08-19-1999	WO				
67.	99/41369	08-19-1999	WO				
68.	99/41383	08-19-1999	WO				
69.	99/41402	08-19-1999	WO				
70.	99/45154	09-10-1999	WO				
71.	99/57128	11-11-1999	WO				
72.	99/65927	12-23-1999	WO				
73.	00/37684	06-29-2000	WO				
OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)							
74.	Dahiyat et al., " <u>Automated Design of the Surface Positions of Protein Helices</u> ," Protein Science 1997, pages 1333-1336.						
75.	Dahiyat et al., " <u>De Novo Protein Design: Fully Automated Sequence Selection</u> ," Science vol. 278 October 3, 1997, pages 82-87.						
76.	Dahiyat et al., " <u>De Novo Protein Design: Towards Fully Automated Sequence Selection</u> ," J. Mol. Biol. 1997 273, pages 789-796.						
77.	Dahiyat et al., " <u>Probing the Role of Packing Specificity in Protein Design</u> ," Proc. Natl. Acad. Sci. USA, September 1997, vol. 94, pages 10172-10177.						
78.	Gordon and Mayo, " <u>Branch-and-Terminate: A Combinatorial Optimization Algorithm for Protein Design</u> ," Structure, September 1999, pages 1089-1098.						
79.	Gordon et al., " <u>Energy Functions for Protein Design</u> ," Current Opinion in Structural Biology, 1999, pages 509-513.						
80.	Gordon and Mayo, " <u>Radical Performance Enhancements for Combinatorial Optimization Algorithms Based on the Dead-End Elimination Theorem</u> ," Journal of Computational Chemistry, 1998, vol. 19, pages 1505-1514.						
81.	Haney et al., " <u>Structural Basis for Thermostability and Identification of Potential Active Site Residues for Adenylate Kinases From the Archaeal Genus <i>Methanococcus</i></u> ," Proteins: Structure, Function, and Genetics, 1997, pages 117-130.						
82.	Malakauskas and Mayo, " <u>Design, Structure and Stability of a Hyperthermophilic Protein Variant</u> ," Natural Structural Biology, June 1998, vol. 5 number 6, pages 470-475.						
83.	Pollock et al., " <u>Coevolving Protein Residues: Maximum Likelihood Identification and Relationship to Structure</u> ," J. Mol. Biol., 1999, pages 187-198.						
84.	Street and Mayo, " <u>Computation Protein Design</u> ," Structure, May 1999, pages R105-R109.						
85.	Street and Mayo, " <u>Intrinsic β-sheet Propensities Result from van der Waals Interactions Between Side Chains and the Local Backbone</u> ," Proc. Natl. Acad. Sci. USA, August 1999, vol. 96, pages 9074-9076.						

APR. 30. 2003 12:29PM

NO. 779

P. 9/16F4

09/495668

86.	Street and Mayo, " <u>Pairwise Calculation of Protein Solvent-Accessible Surface Areas</u> ," Folding & Design, June 3, 1998, pages 253-258.
87.	Strop and Mayo, " <u>Rubredoxin Variant Folds without Iron</u> ," American Chemical Society, March 24, 1999, vol. 121, number 11, pages 2341-2345.
88.	Wollenberg and Atchley, " <u>Separation of Phylogenetic and Functional Associations in Biological Sequences by Using the Parametric Bootstrap</u> ," PNAS, March 28, 2000, vol. 97, pages 3288-3291.
89.	Stemmer, " <u>DNA Shuffling by Random Fragmentation and Reassembly: In Vitro Recombination for Molecular Evolution</u> ," Proc. Natl. Acad. Sci. USA, October 1994, vol. 91, pages 10747-10751.
90.	Venkatasubramanian et al., " <u>Evolutionary Design of Molecules with Desired Properties Using the Genetic Algorithm</u> ," J. Chem. Inf. Comput. Sci., 1995, vol. 35, pages 188-195.
91.	Whipple et al., " <u>Application of Genetic Algorithms to Combinatorial Synthesis: A Computational Approach to Lead Identification and Lead Optimization</u> ," J. AM. Chem. Soc., 1996, vol. 118, pages 1669-1676.
92.	Harayama, Shigeaki, " <u>Artificial Evolution by DNA Shuffling</u> ," Tibtech, February 1998, vol. 16, pages 16-19 and pages 80-82.
93.	Zhang, Ching, " <u>A Genetic Algorithm for Molecular Sequence Comparison</u> ," Proceedings of the International Conference on Systems, Man, and Cybernetics, 1994, pages 1926-1931.
94.	Stemmer et al., " <u>Single-Step assembly of a Gene and Entire Plasmid from Large Numbers of Oligodeoxyribonucleotides</u> ," Gene, 1995, vol. 164, pages 49-53.
Examiner	Date Considered 5-4-03
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.	

Form 1449 (Modified) Information Disclosure Statement By Applicant (Use Several Sheets if Necessary)	Atty Docket No:	Application No.:
	MXGNP002X1	09/495,668
	Applicant:	
	Selifonov et al.	
	Filing Date	Group
	February 1, 2000	1631

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	A1	6,125,381	9/26/00	Toh			
	A2	6,403,312	6/11/02	Bassil, et al			
	A3						

Foreign Patent or Published Foreign Patent Application

Examiner Initial	No.	Document No.	Publication Date	Country or Patent Office	Class	Sub-class	Translation	
							Yes	No
	B1	WO00/47612	8/17/00	WIPO				
	B2	WO01/61344	8/23/01	WIPO				
	B3	WO00/42559	7/2/00	WIPO				
	B4	WO01/75767	10/11/01	WIPO				

Other Documents

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	C1	Young et al., "Characterization of Receptor Binding Determinants of Granulocyte Colony Stimulating Factor," <i>Protein Science</i> 6:1228-1236, 1997
	C2	Dahiyat and Mayo, "Protein Design Automation," <i>Protein Science</i> , 5:895-903, (1996)
	C3	Su et al., "Coupling Backbone Flexibility and Amino Acid Sequence Selection in Protein Design," <i>Protein Science</i> , 6:1701-1707, (1997)
	C4	Voigt et al., "Computationally Focusing the Directed Evolution of Proteins," <i>Journal of Cellular Biochemistry Supplement</i> , 37:58-63 (2001)
	C5	Hellberg et al., "Minimum Analogue Peptide Sets (MAPS) for quantitative Structure-Activity Relationships," <i>Int. J. Peptide Protein Res.</i> 37:414-427 (1991)

NOT
considered**BEST AVAILABLE COPY**

Form 1449 (Modified) Information Disclosure Statement By Applicant (Use Several Sheets if Necessary)	Atty Docket No. MXGNP002X1	Application No.: 09/495,668
	Applicant: Selifonov et al. Filing Date February 1, 2000	Group 1631

C6	Martin van Heel, "A New Family of Powerful Multivariate Statistical Sequence Analysis Techniques," J. Mol. Biol, 220:877-887 (1991)
C7	Goldman et al., "Estimating Protein Function From Combinatorial Sequence Data Using Decision Algorithms and Neural Networks," Drug Dev. Research 33:125-132 (1994)
C8	Gustafsson et al., "Exploration of Sequence Space for Protein Engineering," J. Mol. Recognit. 14:308-314 (2001)
C9	Miyazawa et al., "Residue-Residue Potentials with a Favorable Contact Pair Term and an Unfavorable High Packing Density Term, for Simulation and Threading," J. Mol. Biol., 256:623-644 (1996)
C10	Chao Zhang, "Extracting Contact Energies From Protein Structures: A Study Using a Simplified Model," Proteins: Structure, Function, and Genetics, 31:299-308 (1998)
C11	Miyazawa et al., "Self-Consistent Estimation of Inter-Residue Protein Contact Energies Based on an Equilibrium Mixture Approximation of Residues," Proteins: Structure, Function, and Genetics, 34:49-68 (1999)
C12	Miyazawa et al., "An Empirical Energy Potential With a References State for Protein Fold and Sequence Recognition," Proteins: Structure, Function, and Genetics, 36:357-369 (1999)
C13	Moore et al., "Predicting Crossover Generation in DNS Shuffling," PNAS, Vol. 98, No. 6, 3226-3231 (2001)
C14	Lehman et al., "Engineering Proteins for Thermostability: the Use of Sequence Alignments Versus Rational Design and Directed Evolution," Current Opinion in Biotechnology, 13:371-375 (2001)
C15	Colleen Kelly, "A Test of the Markovian Model of DNA Evolution," Biometrics 50, 653-664, (1994)
C16	H.W. Hellenga, "Rational Protein Design: Combining Theory and Experiment," Proc. Natl. Acad. Sci. USA, Vol. 94, pp. 10015-10017, (1997)
C17	William F. DeGrado, "Proteins from Scratch," Science, Vol. 278, 80-81 (1997)

NOT
considered

Form 1449 (Modified) Information Disclosure Statement By Applicant (Use Several Sheets if Necessary)	Atty Docket No.	Application No.:
	MXGNP002X1	09/495,668
	Applicant:	
	Selifonov et al.	
	Filing Date	Group
	February 1, 2000	1631

	C18	Jonsson, et al, "Quantitative Sequence-Activity Models (QSAM)- Tool For Sequence Design", Nuclear Acid Research Vol. 21, No. 3, pp. 733-739 (1993)
	C19	Sjostrom, et al, "Signal Peptide Amino Acid Sequences In <i>Escherichia coli</i> Contain Information Related To Final Protein Localization. A Multivariate Data Analysis", The CMBO Journal vol. 6, no. 3, pp 823-831, (1987)
	C20	Patel, et al, "Patenting Computer-Designed Peptides", Journal Of Computer-Acid Molecular Design 12 pp543-556, (1998)
	C21	Schneider, et al, "Peptide Design by Artificial Neural Networks and Computer-Based Evolutionary Search", Proc. Natl. Acad. Sci. USA, vol. 95, pp. 12179-12184, October 1998
	C22	Mee, et al, "Design of Active Analogues of a 15-Residue Peptide Using D-Optimal Design QSAR and a Combinatorial Search Algorithm", J Peptide Res. 49, pp. 89-102, (1997)
	C23	Bogarad, et al, "A Hierarchical Approach to Protein Molecular Evolution", Proc. Natl. Acad. Sci. USA, Vol. 96, pp. 2597-2595, March 1999
	C24	Darius, et al, "Simulated Molecular Evolution" Or Computer-Generated Artifacts?", Biophysical Journal, Vol. 67, pp. 2120-2122, November 1994
Examiner		Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

*Not
considered*

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